

1023-J1-1600

Stephen Hilbert* (hilbert@ithaca.edu), Stephen Hilbert, Dept of Mathematics, Ithaca College, Ithaca, NY 14850. *Using a Markov Matrix Model as a Thread Throughout the First Linear Algebra Course*. Preliminary report.

I have used a problem about competition among three dairies in a small town for about the last 15 years in my linear algebra course. (I first saw this problem in James Daniel's textbook."Elementary Linear Algebra and its Applications") Each month the same percentage of customers stay with their current dairy or switch to one of the other dairies (In other words this is a Markov model). Each time I teach the course it seems like there are more topics that can be introduced or clarified by looking at the dairy problem. This problem gives a concrete example which I can integrate throughout the course and provides a unifying thread for many different topics. I will show in class activities as well as how to use them starting from the first day of class. Among the topics that are introduced are: systems of linear equations and solving systems, matrix transformations, MATLAB functions and iterations, equilibria, stability of equilibria, equations of planes, linear combinations, eigenvalues , eigenvectors and powers of matrices. (Received September 26, 2006)